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Time : 2 Hours

**INDUSTRIAL ELECTRONICS
AND INSTRUMENTATION**

Subject Code

V	3	3	4
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Total No. of Questions : 5

(Printed Pages : 3)

Maximum Marks : 50

INSTRUCTIONS :

- (i) All questions are compulsory.
- (ii) Answer each question on a fresh page.
- (iii) Figures to the right indicate full marks.
- (iv) Draw neat diagrams wherever necessary.
- (v) Write the number of the questions and sub-questions clearly.

1. (A) Fill in the blanks :

2×1=2

- (i) The name of the power control switch that is used in an over light detector circuit is
- (ii) An example of an active transducer is

(B) Answer the following :

- (i) With the help of a neat diagram explain the working of an Electrocardiogram.
- (ii) Explain the construction of a photovoltaic cell and state any *two* application of it.

(C) Draw the diagram of a two point starter used in a DC Motor.

2. (A) Answer the following/define :

2×1=2

- (i) Voltage regulator
- (ii) Sensitivity of a meter.

- (B) Answer the following : 2×3=6
- (i) With the help of a neat block diagram explain the working of an inverter.
- (ii) State any *three* points of comparison between RF signal generator and AF signal generator.
- (C) Answer the following in short : 1×2=2
- State the two types of speed control methods used in a DC shunt motor.
3. (A) Fill in the blanks : 1×2=2
- (i) The type of semiconductor material that is used in an IRLED is
- (ii) The ratio of change in the output voltage with the change in load current is known as
- (B) Answer the following : 3×1=3
- Draw a neat block diagram of CRO and state the function of vertical amplifier and delay line.
- (C) Answer the following in detail : 5
- (i) Draw the functional block diagram of timer IC 555 and explain.
- Or*
- (ii) With a neat circuit diagram explain the working of monostable multivibrator using timer IC 555.
4. (A) Answer the following in one sentence/word : 2
- (i) Name the electronic component whose resistance changes with the change in temperature.
- (ii) State the output time equation of an Astable Multivibrator using timer IC 555.

(B) Answer the following : 3×1=3

With a neat Circuit diagram explain range extension of a voltmeter.

(C) Answer the following in detail (any *one*) : 5×1=5

(i) Define a resistive transducer. With a neat diagram explain any *one* type of a strain gauge transducer.

Or

(ii) Define a capacitive transducer. With a neat diagram explain the working of a microphone as a capacitive transducer.

5. Answer the following in short : 2×5=10

(i) Draw the circuit diagram of a lamp dimmer constructed using a DIAC and TRIAC.

(ii) State any *two* points of comparison between LED and LCD.

(iii) Explain the need of a starter in a DC motor.

(iv) Explain the working of tong tester.

(v) With a neat diagram explain the measurement of time period using a CRO.